

APPENDIX 1

Intra-Port Cargo Movement at Selected Ports

(1) Cai Lan Port

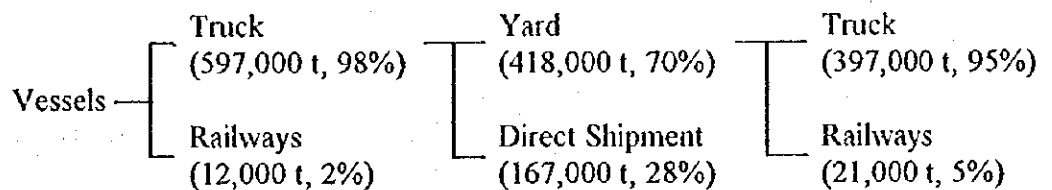
24 hour operation is possible by three shifts of eight hour works. Usually, vessels of 1,000 DWT or larger use their cranes, and smaller vessels use cranes of the port.

(2) Haiphong Port

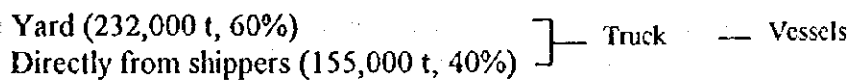
Days-off	20 day
Work hour	6 hour/shift
	Container vessels: four shifts a day
	Regular vessels: three shifts a day
Handling capacity per day	Bagged freight 800 t
	General cargo 450 t
	Steel: 1,000 to 1,200 t

Flow of Freight

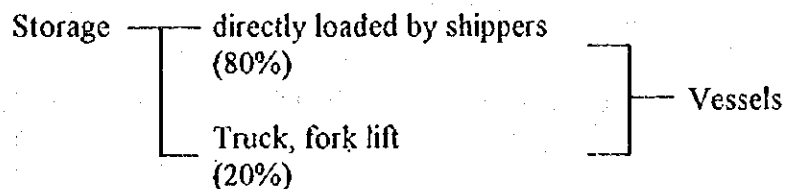
Container (unloading)



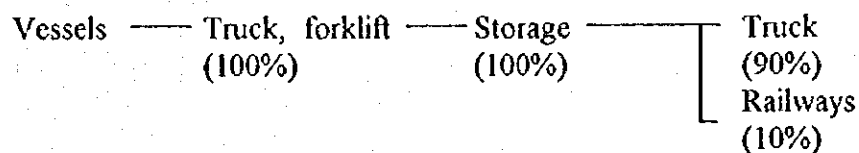
Container (loading)



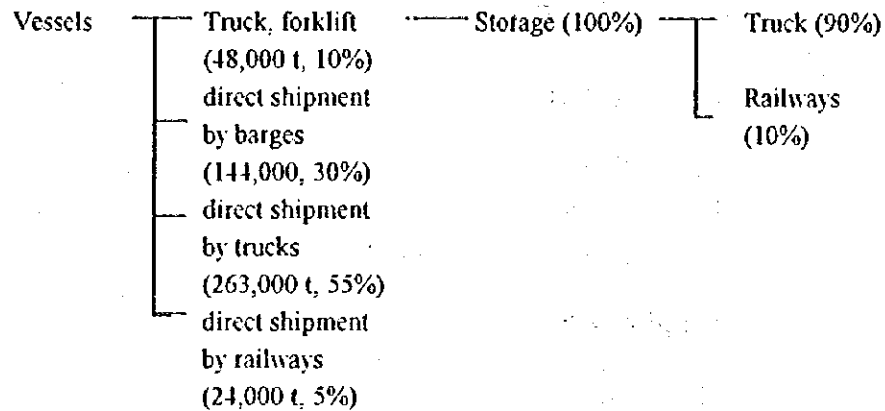
General Cargo (loading)



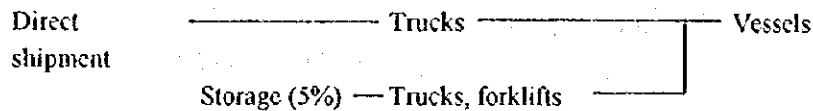
General Cargo (unloading)



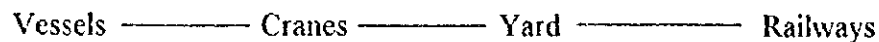
Chemical Fertilizer (bags, unloading)



Cement (bags, loading)



Bulk (loading and unloading)

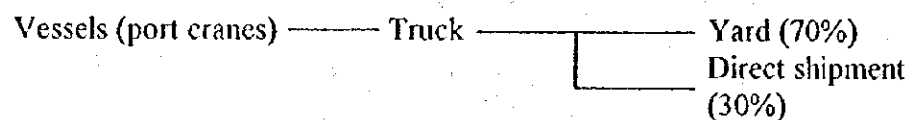


(3) **Hanoi Port**

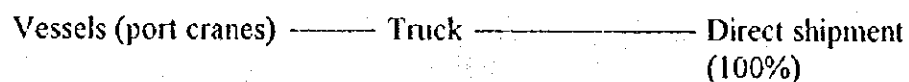
Days off	total of 34 days in 1996; 16 days of the total is due to bad weather
Operation hours	one-six hour shift (six to eight hours a day)
Handling capacity per day	Cement: 200 t, coal: 300 t, sand and gravel: 300 t
One gang	cement, sand and gravel: eight persons coal: 12 persons

Flow of Freight

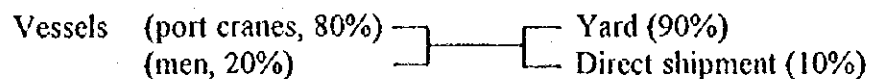
Coal (bulk unloading)



Cement (bags, unloading)



Sand and Gravel (bulk unloading)



(4) Viet Tri Port

Days off 70 days total in 1995; 40 days of the total is due to bad weather

Operation hours one-8 hour shift (twelve hours a day)

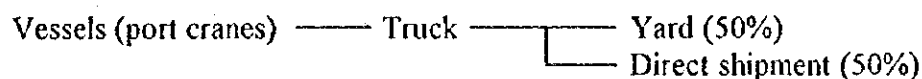
Handling capacity Cement: 180 t, coal: 800 t, sand and gravel: 800 t

per day ore for fertilizer: 200 t, fertilizer 200 t

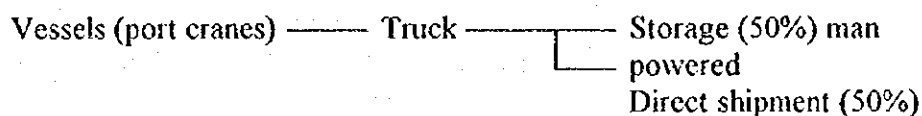
One gang cement, ore for fertilizer: 17 persons

coal: 13 persons

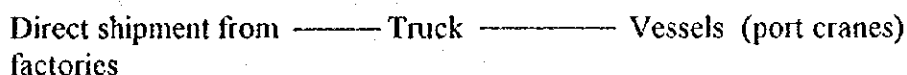
Coal, sand and gravel (bulk unloading)



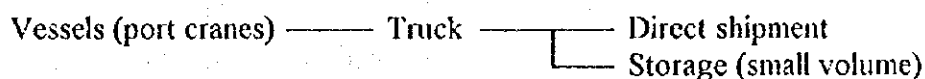
Cement (bags, unloading)



Fertilizer (bags, loading)



Ore for fertilizer (bags, unloading)



(5) Ninh Binh Port

Days off 45 days total in 1995 due to bad weather

Operation hours two-8 hour shift (16 hours a day)

Handling capacity Clinker: 400 t, coal: 500 t, fertilizer: 200-250 t

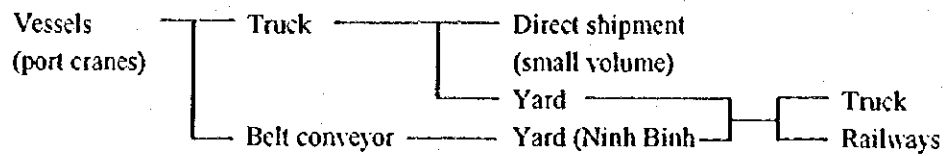
per day

One gang Clinker: 10-12 persons

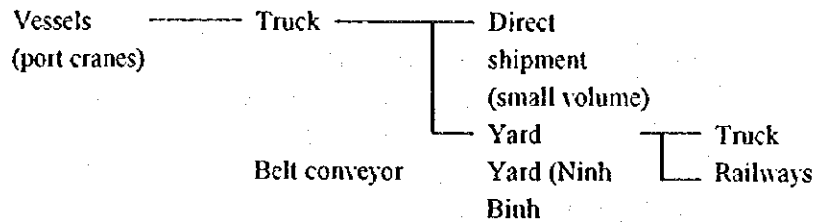
Coal: 27-29 persons (in case of belt conveyors)

Fertilizer: 16 persons

Coal (bulk unloading)



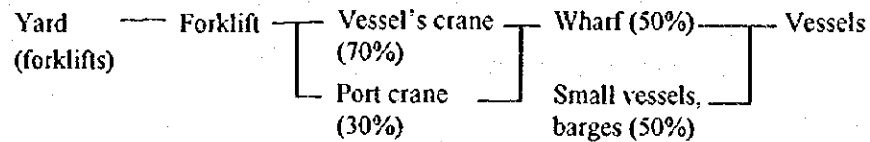
Clinker (bulk, unloading)



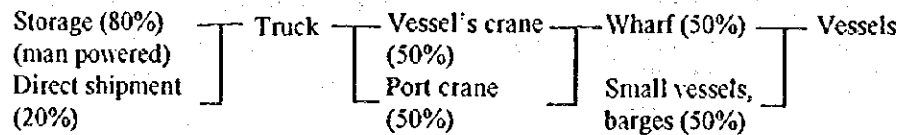
(6) Cua Lo Port

Days off	101 days total in 1995; out of the total 60 days due to bad weather
Operation hours	6 (5.5) hour/shift, maximum of 22 hours (four shifts)
Handling capacity per hour	Log: 20 t, coal: 25 t, fertilizer: 20 t, food: 20 t, ore: 25 t, container: 100 t
Handling capacity per day	Log: 360 t, coal: 300 t, fertilizer: 240 t, food: 240 t, ore: 300 t, container: 1200 t
One gang	Log: 14 persons Coal, fertilizer, food, ore, container: 19 persons

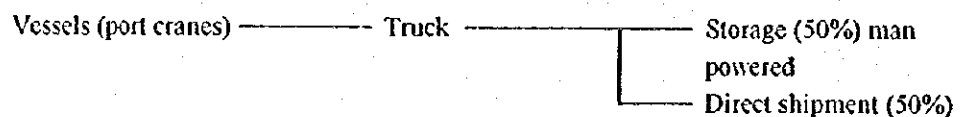
Log (bulk loading)



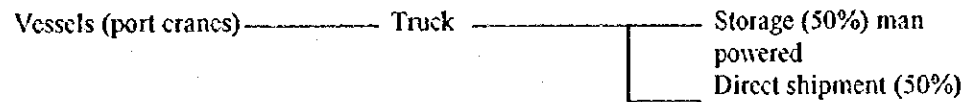
Ore (loading)



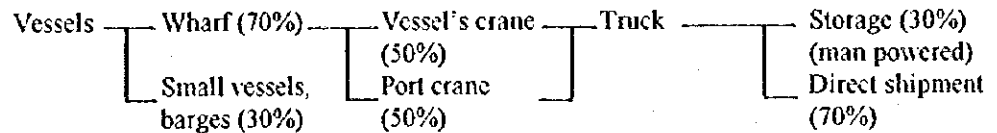
Container



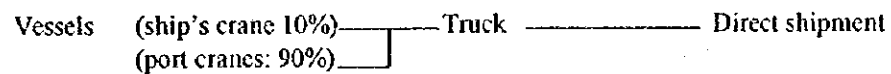
Coal (unloading)



Fertilizer (unloading)



Food

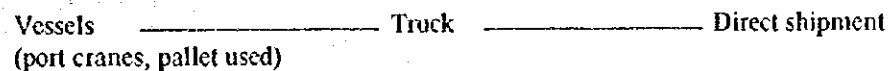


(7) **Thuan An Port**

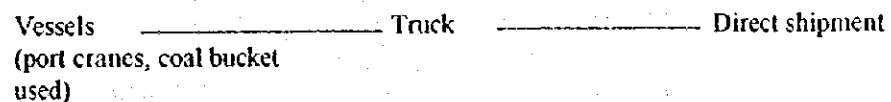
Days off about six months, three to four months of them are due to bad weather
Operation hours 6 hour/shift, maximum of 18 hours (three shifts)
Handling capacity 500 tons or more
per day
One gang 15 - 16 persons

Flow of freight

Cement (unloading)



Coal (unloading)

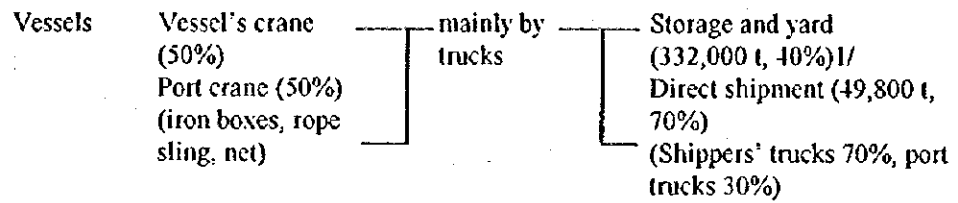


(8) **Danang Port**

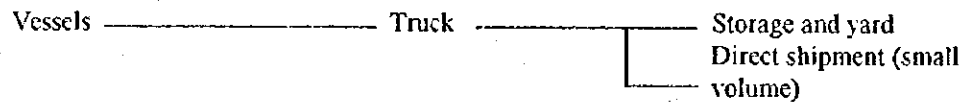
Days off 45 days due to bad weather
Operation hours 6 hour/shift, maximum of 18 hours (three shifts)
Handling capacity 10,000 ton wood chip transfer in 3 days
per day
One gang about 10 persons

Flow of freight

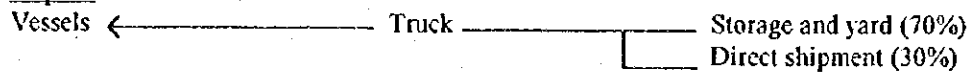
Cargo in general (fertilizer, cement, clinker and others)



Fertilizer (65% bagged, 35% bulk, unloading)

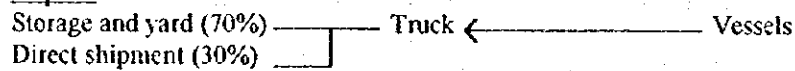


Export



Chip is transported by belt conveyors directly from chip factories.

Import

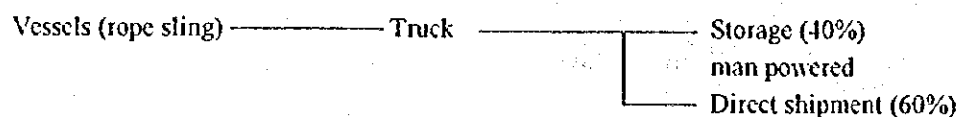


(9) Qui Nhon Port

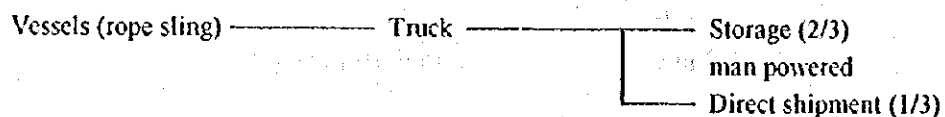
Days off	10 - 15 days due to bad weather
Operation hours	6 hour/shift, 18 hours (three shifts) (6:00 to 24:00)
Handling capacity per day	Cement, fertilizer: 1,600 t, other bagged freight: 1,200, bulk cargo: 1,000 t, general cargo: 500 t, machinery: 600 t, container: 120TEU
One gang	about 10 persons

Flow of freight

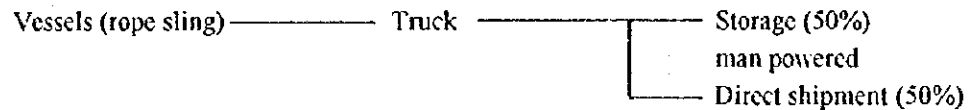
Cement (bagged, unloading)



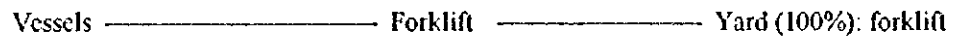
Agricultural products (bagged, unloading)



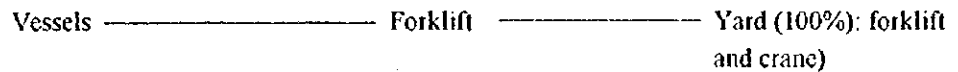
Fertilizer (bagged, unloading)



Wood (loading)



Container

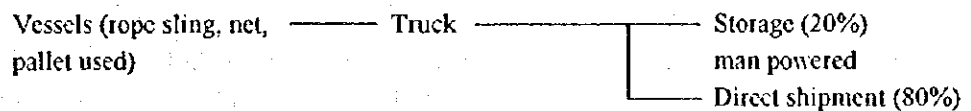


(10) **Nha Trang Port**

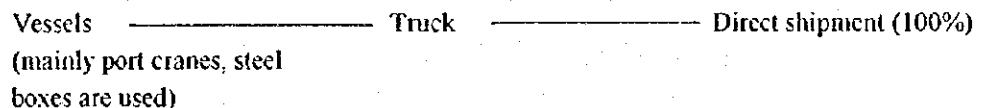
Days off 10 - 15 days due to bad weather
Operation hours 6 hour/shift, maximum of 24 hours (four shifts)
Handling capacity 150 t/6h, 600t/day/gang, bags: 1,000t/day,
per day bulk: 800t/day
One gang 13-14 persons
3 to 4 gangs for cement, fertilizer, coal
one gang for agricultural and marine products

Flow of freight

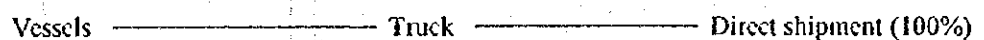
Cement, fertilizers (bagged, unloading)



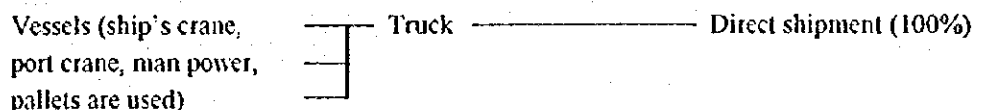
Coal (bulk, unloading)



Agricultural products (bagged, loading)



Marine products (loading)



Container (loading: 80% empty, 20% loaded, unloading: 100% loaded)

Vessels (ship's crane) ————— Truck ————— yard (port cranes, 100%)

(11) Dong Nai Port

Flow of freight

General

Crane ————— Yard (14%)

Crane ————— Direct shipment (4%)

man powered (69%)

forklift (13%)

(12) Saigon Port

Operation hours 7:00-17:00, 17:00-:00

Flow of freight

60% of freight is at wharves. 40% is transshipped at a buoy offshore by barges and small vessels. Out of 40% transshipment at the buoy, 70% is loading and 30% is unloading.

(13) My Tho Port

Days off 59 days in 1995

Operation hours 8 hour/shift, 12 hours (1.5 shifts)

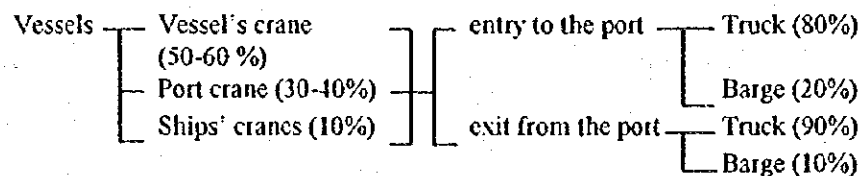
Handling capacity Rice: 800 t, coal: 400 t, vegetable oil: 400 t
per day

One gang Rice: 25 persons including two , coal: 25 persons
including one tally, vegetable oil: 18 persons
including one tally.

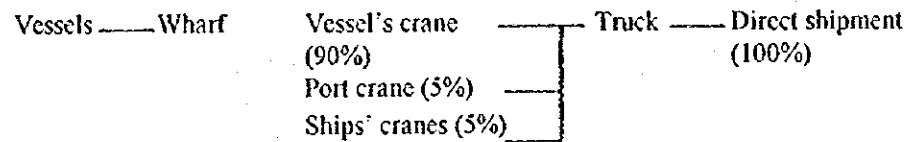
Average number two
of gangs per ship

Flow of freight

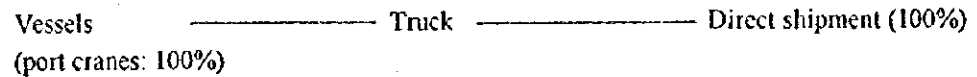
General (loading and unloading)



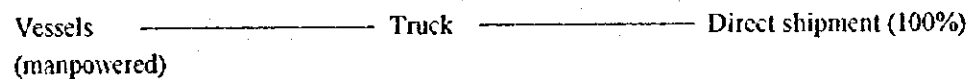
Rice (bagged, loading)



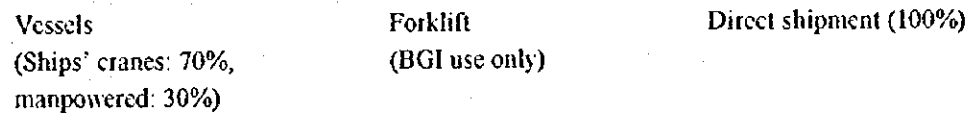
Vegetable oil (Packaged, loading)



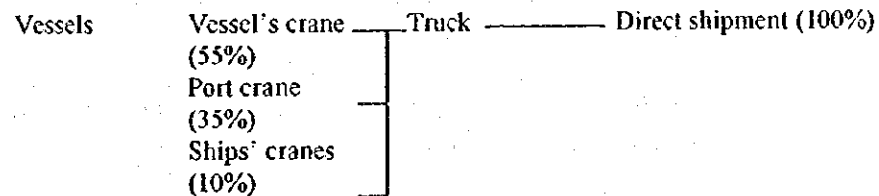
Coal (unloading)



Beer (boxed, loading)



Other bagged cargoes (loading)

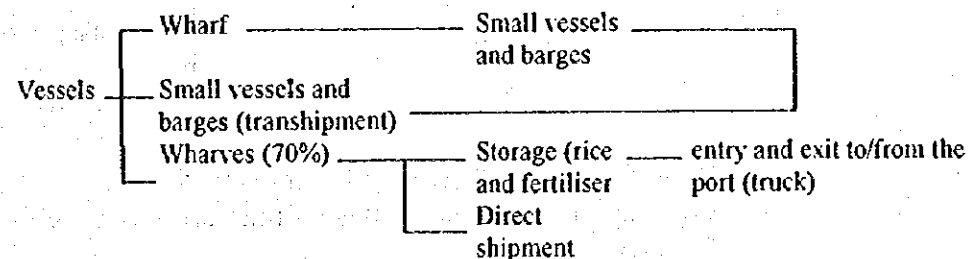


(14) Can Tho Port

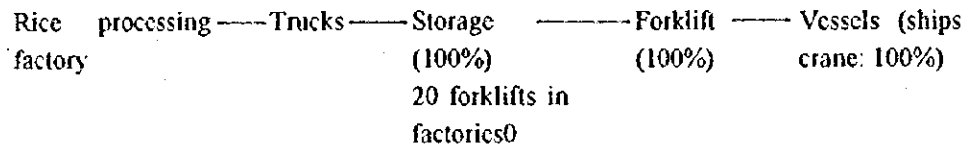
Days off 172 days in 1995, out of 172 days 15 days are due to bad weather.

Flow of freight

General



Rice (bagged, loading)



Other types of rice



Cement (bags, unloading)

All bagged cement is directly shipped with being stored.

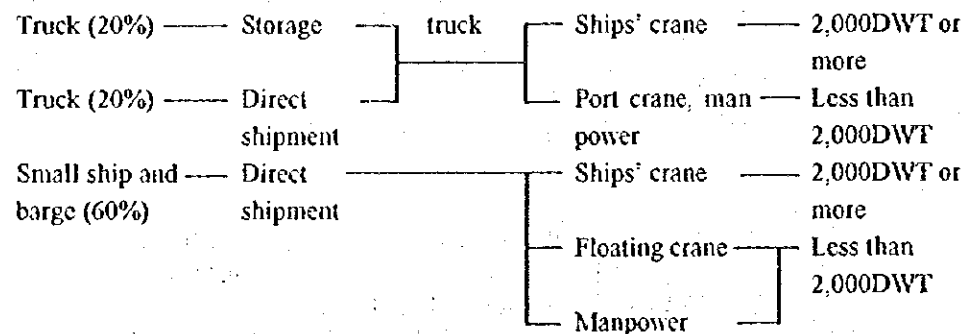
Fertilizers (bags, unloading)

All bagged fertilizers are once kept in storage by men.

(15) My Thoi Port

Days off	80 days in 1995, including 60 days not in operation due to bad weather (rainy season)
Operation hours	8 hour/shift, 12 to 18 hours (2 to 3 shifts)
Average handling capacity	40 t/h, 300 t/8h
Handling capacities of cranes	ships crane: 50 t/h, crane on land: 32 t/h, floating crane: 45t/h
One gang	11 - 12 persons (average number of gangs =3)

Flow of freight



Rope slings and net are used for crane transport.

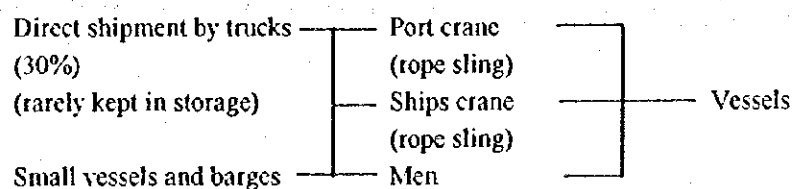
Loading and unloading within storage areas is done by men (50%) and forklifts (50%).

(16) **Dong Thap Port**

Days off	more than six month
Operation hours	8 hour/shift, 8 hours (1 shifts), at peak 16 hours (2 shifts)
Handling capacity	400 t/8h
One gang	20-30 persons (one gang per ship)

Flow of freight

Rice and other agricultural products (bagged, loading)



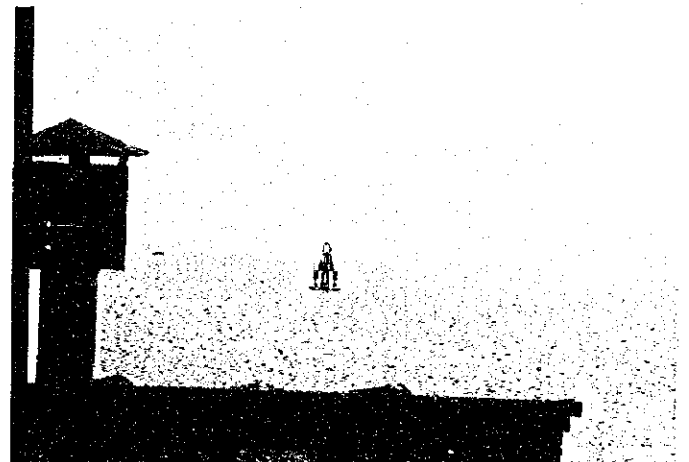
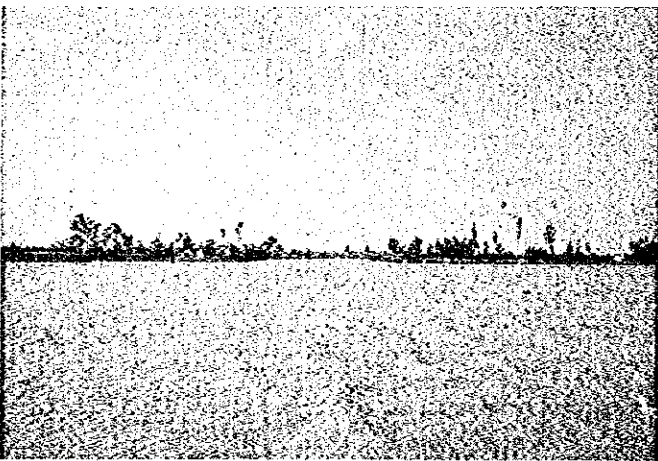
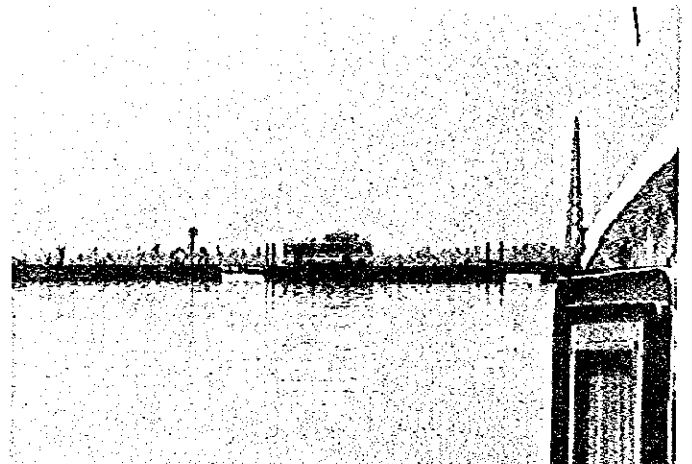
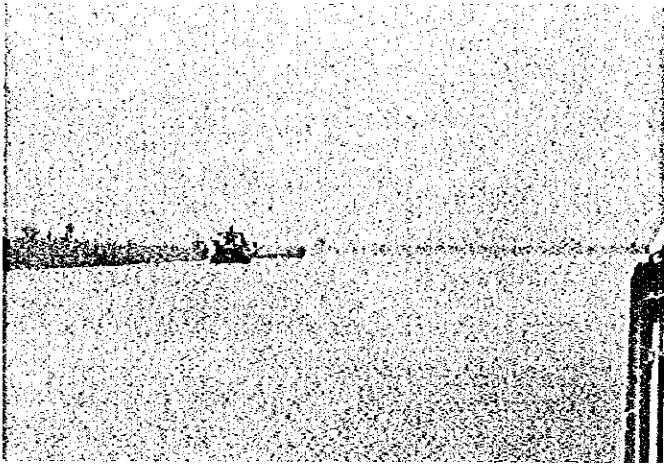
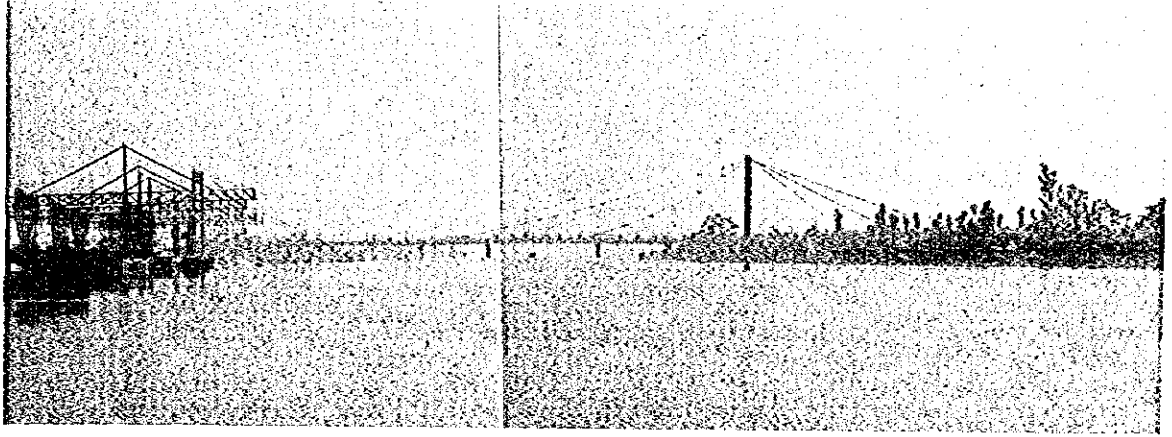
Storage are mainly used for tobacco leaves.

Appendix 2

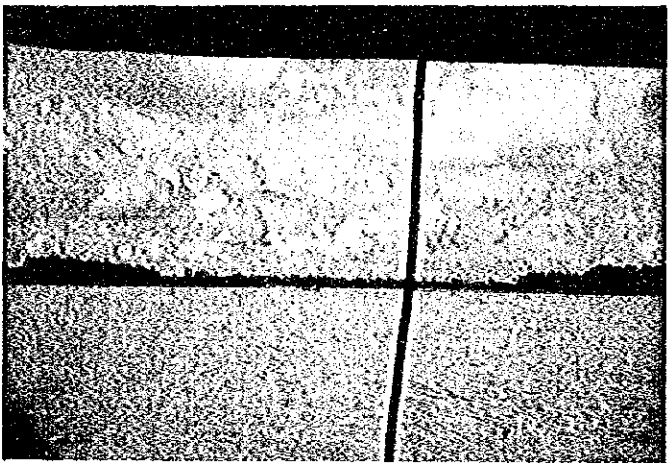
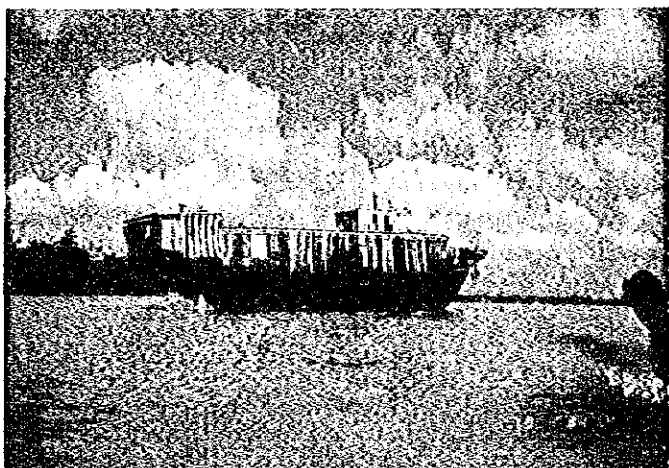
Pictures during Sea-Cum-Riverways Survey

- 2.1 Lach Giang - Nam Dinh
- 2.2 Cua Dinh An - Can Tho
- 2.3 Cua Tieu - My Tho

2.1 Lach Giang - Nam Dinh Route



2.2 Cua Dinh An - Can Tho Port



Cua Tieu - My Tho Route

